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# PATENT ABSTRACTS OF JAPAN

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(71)Applicant : MARUTANI KAKOKI KK

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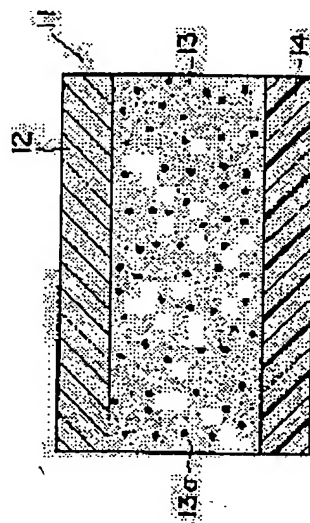
(72)Inventor : ITO YUICHI

(54) SHEET MATERIAL FOR LIGHT PACKAGING AND LIGHT PACKAGING BAG USING SAME

(57)Abstract:

PURPOSE: To regulate the moisture absorbing speed, and maintain the moisture absorbing capability for a long period of time by a method wherein on the lower surface of a supporting body with steam barrier capability, a moisture absorbing layer is provided, and on the lower surface, a moisture permeable adhesive film layer is formed.

CONSTITUTION: A supporting body 12 is constituted of a materials with steam barrier capability, e.g. a aluminum composite film layer, and a moisture absorbing layer 13 is constituted, e.g. by encapsulating an appropriate quantity of a physical absorbing type (porous) moisture absorbing material 13a in an olefin synthetic resin material. An adhesive film layer 14 is constituted of a heat-sealable chemical-resistant thermoplastic resin material, e.g. nylon, polycarbonate, polystyrene or polyethylene, etc., and the moisture absorbing speed of the moisture absorbing layer 13 is adjusted by the selection of a material and the thickness.



## LEGAL STATUS

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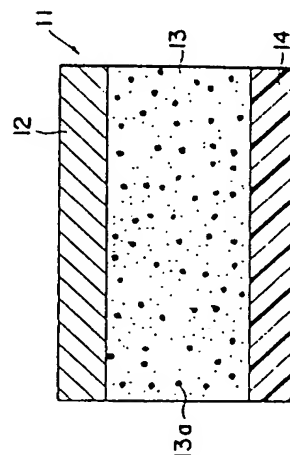
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(54) SHEET MATERIAL FOR LIGHT PACKAGING AND LIGHT PACKAGING BAG USING SAME

- (11) 4-189779 (A) (43) 8.7.1992 (19) JP  
 (21) Appl. No. 2-319902 (22) 22.11.1990  
 (71) MARUTANI KAKOUKI K.K. (72) YUICHI ITO  
 (51) Int. Cl.<sup>5</sup> B65D81/26, B32B7/02, B32B27/00

**PURPOSE:** To regulate the moisture absorbing speed, and maintain the moisture absorbing capability for a long period of time by a method wherein on the lower surface of a supporting body with steam barrier capability, a moisture absorbing layer is provided, and on the lower surface, a moisture permeable adhesive film layer is formed.

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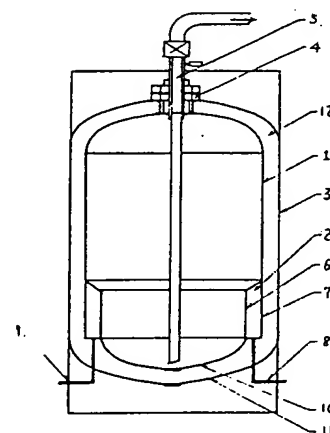


(54) VACUUM THERMAL INSULATION TYPE BEER BARREL WITH COOLING TANK

- (11) 4-189780 (A) (43) 8.7.1992 (19) JP  
 (21) Appl. No. 2-304073 (22) 13.11.1990  
 (71) SAPPORO BREWERIES LTD(1) (72) YUTAKA FUJIMOTO  
 (51) Int. Cl.<sup>5</sup> B65D81/38, B65D8/04, B65D81/18, F16L59/06

**PURPOSE:** To keep the temperature of a raw beer always at the most suitable temperature at any time by a method wherein after making everything excepting a mouth piece be a vacuum thermal insulation layer with a metal double structure, a circulating type cooling tank is attached under an inner cylinder body.

**CONSTITUTION:** An inner cylinder 1 is manufactured in such a manner that the diameters of an inner cylinder body lower part 6 and an inner cylinder under end plate 10 are contracted, and they are joined by welding. Then, a cooling tank outer cylinder 7 is manufactured to be adjusted to the contracted diameter part of the inner cylinder body lower part 6, and the top and bottom are welded into a bag shape and attached. A cooling water inlet nozzle 8 and an outlet nozzle 9 are joined to the cooling tank outer cylinder 7 by welding, and the nozzles are projected to be lower than an outer cylinder under end plate 11, and the outer peripheries of the inlet nozzle 8 and the outlet nozzle 9 are welded to the outer cylinder 3 and sealed.



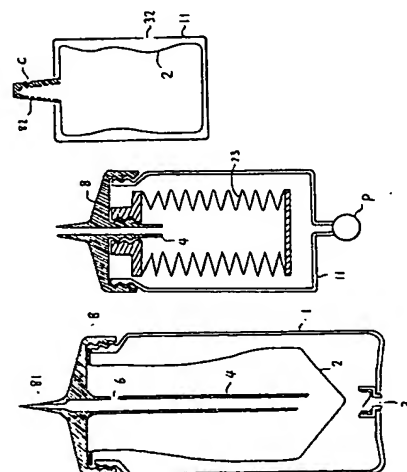
2: cooling tank, 4: mouth piece, 5: beer valve, 12: vacuum layer

(54) DUPLEX CONTAINER INVOLVING BAG EQUIPPED WITH CONDUIT PIPE

- (11) 4-189781 (A) (43) 8.7.1992 (19) JP  
 (21) Appl. No. 2-274415 (22) 13.10.1990 (33) JP (31) 90p.41466 (32) 21.2.1990  
 (71) SHIYOU KUNIZAWA (72) TAKASHI KUNISAWA(4)  
 (51) Int. Cl.<sup>5</sup> B65D83/00, B65D77/06

**PURPOSE:** To materialize a convenient and easy-to-use container from which a fluid substance is taken out in small quantities by attaching a conduit pipe which is connected to a mouth part of a lid and an inner bag which wraps the conduit pipe in an elastic outer container which is equipped with a check valve.

**CONSTITUTION:** For a duplex container which involves a bag equipped with a conduit pipe, in an elastic outer container 1 equipped with a check valve 3, a conduit pipe 4 which is connected with a mouth part 81 of a lid 8, and an inner bag 2 which wraps the said conduit pipe 4 are attached. The inner bag 2, of which the material is a synthetic resin, and of which the bottom part has a V-shape, wraps the conduit pipe 4, and the mouth part is attached to the upper part of the conduit pipe 4 or the mouth part of the outer container 1. The attaching method is to screw the mouth part of the inner bag 2 in the upper part of the conduit pipe 4, or to press-fit the mouth part which is fitted on a ring-shaped protuberance. For the conduit pipe 4, a vent hole is provided on the upper part. In the case of the outer container 1 equipped with a pump P, the conduit pipe 4 which is connected to the mouth part 81 and a bellows which wraps the said conduit pipe 4 are attached in the outer container 1. In the case of an outer container 12 which is made of a paper pack equipped with a vent hole 32, a bag 2 with a straw-shaped mouth part 82 equipped with a notch C is placed in the outer container 12, and the straw-shaped mouth part 82 is projected to the outside of the outer container 12.



PTO: 2003-3872

Japanese Published Unexamined Patent Application (A) No. 04-189779, published July 8, 1992; Application Filing No. 01-319902, filed November 22, 1990; Inventor(s): Yuuichi Ito; Assignee: Maruya Chemical and Mechanical Engineering Corporation; Japanese Title: Light Packing Sheets and Light Packing Bags Thereof

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## Light Packing Sheets and Light Packing Bags Thereof

### CLAIM(S)

- 1) A light packing sheet member characterized in that a water-absorbing layer is formed on the back surface of a substrate having a steam barrier property, and that a water-permeable adhesive film layer is formed on the back surface of said water-absorbing layer.
- 2) A light packing bag characterized in that the sheet member, wherein the water-absorbing layer is formed on the back surface of a substrate having a steam barrier property and the water-permeable adhesive film layer is formed on the back surface of said water-absorbing layer, is folded orienting its adhesive film layer inward, and in that the necessary place of the overlapped section of said adhesive film layer is heat-sealed.

### DETAILED DESCRIPTION OF THE INVENTION

#### (Field of Industrial Application)

The present invention pertains to a light packing sheet and light packing bag thereof for packing pharmaceutical products, food products,

cosmetics, parts for semiconductor products and machines used in high tech industries that need to avoid humidity.

(Prior Art)

As an representative example of a light-packing bag used for the aforementioned purpose, a technology disclosed in Japanese Published Unexamined Patent Application 01-144345 is well known. The light packing bag disclosed in this patent is shown in Fig. 3 and Fig. 4. In the figure, 1 indicates the packing bag, and 2 the sheet member for forming the packing bag 1. The sheet member 2 is prepared by installing moisture-resistant coating layer 4 on the bottom surface of the substrate 3, installing heat-sealing layer 6 on the bottom surface of the moisture-resistant coating layer 4 via heat-sealing layer 6, and impregnating the heat-sealing layer 6 with moisture-absorbing agent (water-absorbing agent) 7.

Said packing bag 1 is made by folding said sheet member 2 by orienting heat-sealing layer 6 inward and by heat-sealing the necessary place 8 of the overlapped section of the heat-sealing layer 6. This heat-sealing layer 6 is made of thermoplastic resin. Since the resin contains moisture-absorbing agent 8, as mentioned earlier, it can absorb moisture inside the bag.

### (Problems of the Prior Art to Be Addressed)

The aforementioned prior art light packing bag is free from the problem of sealing a package of a drying agent or of solid drying agent in the packing bag along with a product, but the moisture-absorbing agent is exposed to the inner surface of packing bag with which the product contacts, which causes a problem that the moisture-absorbing agent is attached to the product.

If the heat-sealing layer 6 contains a large amount of moisture-absorbing agent to improve the moisture absorbing performance, e.g., an amount of moisture to be absorbed, its bonding performance is reduced, losing its durability. On the other hand, if the content of the moisture absorbing agent is reduced to improve the bonding performance, the moisture absorbing performance will be extremely reduced, losing the purpose of a packing bag, which is not appropriate.

The present invention, to solve the aforementioned problems, attempts to present a dust-proof light packing sheet member that is adjustable in water-absorbing speed, excellent in heat-sealing performance and processable into a bag, as well as a highly moisture-absorbent light packing bag wherein the moisture-absorbing agent is not exposed to the inner surface with which the product contacts.

(Means to Solve the problems)

To accomplish the aforementioned problem, in the first structure of the present invention, a water-absorbing layer is installed on the back surface of the substrate having a steam-barrier function and a water-permeable adhesive film layer is formed on the back surface of said water-absorbing surface; in the second structure of the present invention, the sheet member explained as the first structure is folded orienting the adhesive film layer inward, and the necessary place of the overlapped section of the adhesive film is thermally bonded.

(Operation)

According to the aforementioned structures, the water-absorbing speed can be adjusted by selecting the thickness of the adhesive film formed on the back surface of the water-absorbing layer, so the water-suction performance can be preserved over the long time.

The supporting member, which becomes a steam-barrier layer, and the water-permeable adhesive film layer interpose the water-suction layer, so external moisture penetration can be prevented and the dust-proof property can be well preserved.

### (Embodiment Example)

The present invention is explained with reference to one embodiment example shown in Fig. 1 – Fig. 2.

Fig. 1 shows an expanded sectional view of the sheet member of the present invention. In the figure, 11 indicates the sheet member of the present invention, and 12 the substrate of the sheet member 11. The substrate 12 is made of material having a steam-barrier function, e.g., aluminum composite film. In this case, the thickness and hardness of the substrate are selected to be suitable for accommodating a part for machines and semiconductor products used in high technology industries and a pharmaceutical product, a food product, and a cosmetic product, but generally the thickness is set at approx. 10 – 50  $\mu$ .

In the figures, 13 shows the water-absorbing layer formed on the bottom surface of said substrate 12. The water-absorbing layer 13 is, for example, prepared by sealing a proper amount of physical absorption-type (porous) water-absorbing material 13a (e.g., silica gel, active alumina, and synthetic zeolite) in olefin group synthetic resin material. The water – absorbing layer 13 thus prepared is free from water-solubility, corrosion, and from salty water-solubility but is excellent in safety and cleanness. This water-absorbing layer 13 and the substrate 12 are bonded with an adhesive



or by some other method (e.g., lamination process). This water-absorbing performance of water-absorbing layer 13 can be determined by types of water-absorbing material in the water-absorbing layer 13.

In the figures, 14 indicates a water permeable adhesive film layer formed on the back surface of the water absorbing layer 13, and the adhesive film layer 14 is made of heat-sealable chemical resistant thermoplastic resin material, e.g., nylon, polycarbonate, polystyrene, or polyethylene. By selecting the thickness and material of the adhesive film layer 14, the water absorbing speed of the water suction layer 13 can be adjusted. For this water content adjustment, fine pores may be made in the film layer if necessary. The formation of adhesive film layer 14 is necessary to provide sheet member 11 with heat-sealability (bag processability) and to provide it with a dust-proof characteristic in cooperation with said substrate 12.

Fig. 2 shows a perspective view of the light packing bag formed by said sheet member. The light packing bag 20 is formed by folding the sheet member 11 by orienting the adhesive film layer 14 inward, and by heat-sealing the necessary place of the overlapped section (hatched section outside the dotted line) of the adhesive film layer 14.

With the light packing bag 20, the substrate 12 constituting the sheet member 11 prevents the moisture penetration from the outside, and inside the bag, water absorption layer 13 absorbs water. Therefore, a product inside the bag (e.g., pharmaceutical products, food products, cosmetics, machine parts or semiconductor products used in high technology industries) can be preserved in dry state. In addition, with the light packing bag 20 of the present invention, the moisture absorbing agent (water-absorbing layer) is covered with the adhesive film layer 14 and is not exposed, so the product will not have a chemical change. Also, the product will not be contaminated with the moisture-absorbing dust.

The light packing sheet of the present invention and light packing bag made of this sheet are not limited to that of the above embodiment example but can take variant forms within the basic idea of the present invention.

(Advantage)

As explained above, in the present invention, on the back surface of the water-absorbing layer formed the back surface of the substrate, a water-permeable adhesive film layer is formed to adjust the water absorbing speed, so the water-absorbing performance can be preserved over the long period. The adhesive film layer formed on the back surface of the water-absorbing layer, unlike the prior art one, does not contain the absorbing agent that

prevents the heat-sealability, so it is suited to be processed into bags. In addition, the water-absorbing layer, for its being interposed by the substrate and the adhesive film layer, is excellent in dust-proof characteristic.

With the light packing bag made out of the sheet of the present invention, its substrate prevents the moisture penetration from the outside, and inside the bag, the water content is absorbed by the water-absorbing layer through the adhesive film layer, so the moisture-absorbing agent (drying agent) is not exposed in the bag. There, the product in the bag is not subjected to a chemical change and will not be contaminated with the moisture-absorbing agent, producing various excellent advantages.

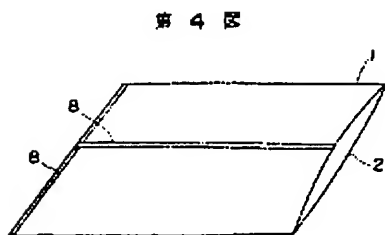
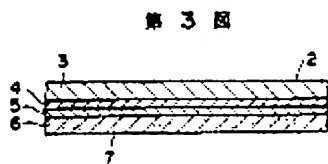
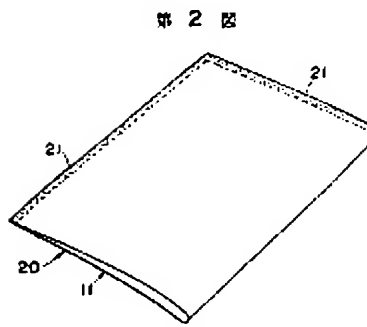
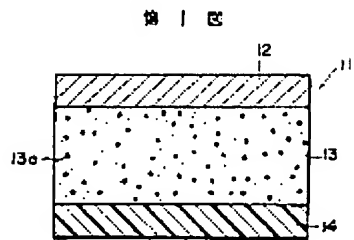
#### BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 – Fig. 2 indicate one embodiment example of the present invention. Fig. 1 shows an expanded sectional view of the sheet member. Fig. 2 shows a perspective view of the appearance of the bag. Fig. 3 shows an expanded sectional view of the prior art. Fig. 4 shows a perspective view of the appearance of the bag.

- 11. sheet member
- 12. substrate
- 13. water-absorbing layer
- 14. adhesive film layer

20. light packing body

21. heat-sealing section



Translations  
U. S. Patent and Trademark Office  
6/13/03  
Akiko Smith

## ⑫ 公開特許公報(A) 平4-189779

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④ 公開 平成4年(1992)7月8日

審査請求 未請求 請求項の数 2 (全4頁)

⑭ 発明の名称 軽包装用シート材及びこれを用いた軽包装袋

⑰ 特 願 平2-319902

⑱ 出 願 平2(1990)11月22日

⑲ 発 明 者 伊 藤 祐 一 千葉県松戸市中金杉4-126

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## 明 細 書

## 1. 発明の名称

軽包装用シート材及びこれを用いた軽包装袋

## 2. 特許請求の範囲

(1) 水蒸気バリアー性能を有する支持体の下面に水分吸着層を設け、該水分吸着面の下面に水分透過性の接着フィルム層を形成したことを特徴とする軽包装用シート材。

(2) 水蒸気バリアー性能を有する支持体の下面に水分吸着層を設け、該水分吸着面の下面に水分透過性の接着フィルム層を形成してなるシート材を、接着フィルム層を内側にして折返し、該接着フィルム層の重なり部の必要個所を熱接着形成したことを特徴とする軽包装袋。

## 3. 発明の詳細な説明

(産業上の利用分野)

この発明は医薬品類、食品類、化粧品などの商品やハイテク産業で用いられる機械部品、半導体製品等の部品であって、湿度を嫌う物品を包装す

るのに好適な軽包装用シート材及びこれを用いた軽包装袋に関するものである。

(従来技術)

従来、上記のような用途に用いる軽包装袋の代表例として、実開平1-144345号公報に開示されたような技術が知られている。この公報に記載の軽包装袋を第3図、第4図に示す。図において、1は包装袋、2は該包装袋1を形成するシート材である。シート材2は支持体3の下面に防湿コート層4を設け、該防湿コート層4の下面に接着剤層5を介してヒートシール性層6を設け、該ヒートシール性層6にはシリカゲルなどの吸湿剤(水分吸収剤)7を含有させてなる。

前記包装袋1は前記シート材2をそのヒートシール性層6を内側にして折返し、ヒートシール性層6の重なり部の必要個所8をヒートシールしてなる。このヒートシール性層6は熱可塑性樹脂により構成され、樹脂中には前述の如く吸湿剤8が含有されているため、袋内の湿気を吸収することができるようになっている。

〔案が解決しようとする課題〕

上記従来の軽包装袋は、従来から問題になっていた、袋状にした乾燥剤や固形の乾燥剤を商品と一緒に包装袋内に投入する面倒や不都合さが幾分解消されるものの、商品が触れる包装袋内面に吸湿剤が露出し、しかも吸湿剤の粉末（ダスト）が商品に付着（汚す）するとの問題があった。

また、吸湿剤を含有させたヒートシール性層 6 は、吸湿量等の吸湿性能を高めるために吸湿剤を多量に含有させると、接着性能が低下し、耐久性のない袋となってしまう一方、吸湿剤の含有量を抑えて接着性能を高めると、吸湿性能が極端に低下し、この種の包装袋の目的を失うといった問題があり、必ずしも適切とはいえない難いものであった。

この発明は上記の事情に鑑み、水分吸着スピードの調整が可能であり、ヒートシール性が良好で製袋加工性が高く、しかもダストブーフ性に優れた軽包装用シート材と、商品が触れる包装袋内面に吸湿剤が露出しない吸湿性能の高い軽包装袋

を提供することを目的としている。

〔課題を解決するための手段〕

上記目的を達成するため、この発明の第 1 の構成は、水蒸気バリアー性能を有する支持体の下面に水分吸着層を設け、該水分吸着面の下面に水分透過性の接着フィルム層を形成したこと、この発明の第 2 の構成は、第 1 の構成に示したシート材を接着フィルム層を内側にして折返し、該接着フィルム層の重なり部の必要箇所を熱接着形成したことである。

〔作用〕

上記構成により水分吸着層の下面に形成した接着フィルム層の厚さの選択により水分吸着スピードが調整でき、水分吸着性能を長期にわたって持続できるようにした。

また、水蒸気バリアー層となる支持体と、水分透過性の接着フィルム層とで水分吸着層をサンドウィッチしているから外部からの透湿を防止すると共に、ダストブーフ性を良好に保持するようになっている。

〔実施例〕

次に、この発明を第 1 図～第 2 図に示す一実施例に基いて説明する。

第 1 図は本願シート材の拡大断面図である。図において、11 は本願シート材、12 は該シート材 11 の支持体である。支持体 12 は水蒸気バリアー性能を有する素材、例えばアルミ複合フィルム層から構成されている。この場合、支持体 12 の厚さ及び剛性は医薬品類、食品類、化粧品、ハイテク産業で用いられる機械部品、半導体製品等々収容する物品に適するように決定されるが、普通には 10～50  $\mu$  程度として設定される。

13 は前記支持体 12 の下面に形成された水分吸着層で、該水分吸着層 13 は例えば、オレフィン系の合成樹脂材に、物理吸着タイプ（多孔質）の水分吸着材料（例えばシリカゲル、活性アルミナ、合成ゼオライト等）13a を適量封入してなる。かくして得た水分吸着層 13 は水溶性・腐食性・潮解性がなく、安全性および衛生性に優れている。この水分吸着層 13 と支持体 12 とは接

着剤接着或いは他の方法（例えば積層加工法）で接着される。この水分吸着層 13 は層内に存在する水分吸着材料の種類等により吸水能力を決定できる。

14 は前記水分吸着層 13 の下面に形成された水分透過性の接着フィルム層で、該接着フィルム層 14 はヒートシール可能な耐薬品性の熱可塑性樹脂材料、例えばナイロン、ポリカーボネート、ポリスチレン、ポリエチレン等から構成されている。該接着フィルム層 14 は素材や厚さの選択により水分吸着層 13 の水分吸着スピードを調整できる。この水分調整のために、必要に応じフィルム層自身に細孔を人工的に形成することもある。また、接着フィルム層 14 の形成はシート材 11 にヒートシール性（製袋加工性）を付与するためにも、更に、接着フィルム層 14 の形成は前記支持体 12 と相まってダストブーフ性を付与するためにも重要である。

第 2 図は前記シート材からなる軽包装体の斜視図である。該軽包装体 20 はシート材 11 をその

接着フィルム層14を内側にして折返し、該接着フィルム層14の重なり部の必要箇所(破線ハッチング部)21を熱着(ヒートシール)形成してなる。

かくして得た軽包装体20は、シート材11を構成する支持体12が外部からの透湿を防ぐとともに、袋体内部では水分透過性のある接着フィルム層14を通して水分吸着層13による水分吸着ができるから、袋内に商品(例えば医薬品類、食品類、化粧品などの商品やハイテク産業で用いられる機械部品、半導体製品等の部品であって、湿度を嫌う物品)を収容しておけばその商品を常に乾燥状態に保つことができる。しかも、本願軽包装袋20は吸湿剤(水分吸着層)が接着フィルム層14にて覆われ、袋内には露出せず、商品に化学変化を生じさせる虞れも、また、商品を吸湿剤の粉末で汚すこともない

なお、この発明に係る軽包装用シート材及びこれを用いた軽包装袋は上記実施例に限定されるものではなく、その要旨を変更せざる範囲内におい

て種々に変形実施することが可能であることを付記する。

#### (発明の効果)

以上の如く、この発明は支持体の下面に形成した水分吸着層の下面に、水分透過性のある接着フィルム層を形成し、水分吸着スピードの調整を可能にし、水分吸着性能を長期にわたって持続できるようにしている。また、水分吸着層の下面に形成した接着フィルム層には従来のものと異なり、ヒートシール性を阻害する吸着剤の混入がないので製袋加工性が高い。更に、水分吸着層は支持体と接着フィルム層とによりサンドイッチ状に挟まれているから、ダストブーフ性に優れるものである。

また、本願シート材を用いて得た軽包装体は、支持体が外部からの透湿を防ぎ、袋体内部では接着フィルム層を通して水分吸着層による水分吸着ができるから、吸湿剤(乾燥剤)が袋内に露出せず、商品に変化を生じさせたり、商品を吸湿剤の粉末で汚すこともないなど各種の優れた効果を奏

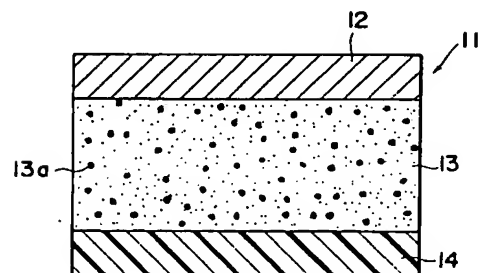
するものである。

#### 4. 図面の簡単な説明

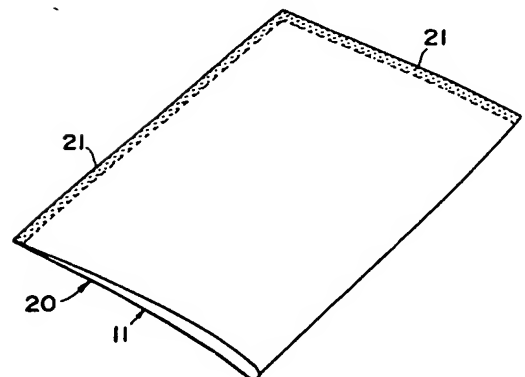
第1図～第2図はこの発明の一実施例を示し、第1図はシート材の拡大断面図、第2図は袋体にした状態の外観斜視図、第3図は従来例の拡大断面図、第4図は袋体にした状態の外観斜視図である。

- 11……シート材
- 12……支持体
- 13……水分吸着層
- 14……接着フィルム層
- 20……軽包装体
- 21……熱着部

第1図



第2図

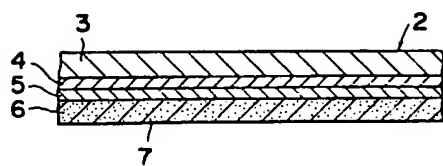


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第 3 図



第 4 図

